

TOY VEHICLE

Background to the Invention

This invention relates to a toy vehicle comprising sound-producing means
5 arranged to replay recorded music or other sounds in a novel and amusing
manner.

Summary of the Invention

The invention provides a toy vehicle comprising sound-producing means
10 arranged to replay recorded sounds and means for activating the sound-
producing means depending on the motion of the vehicle.

In a particular embodiment of the invention, a first sound, such as a sample
from a recording of music, is emitted if the vehicle is moved forwards and a
15 second sound is emitted if the vehicle is moved backwards. These sounds
may be arranged to be emitted for as long as the vehicle is in motion. Thus
an effect similar to the "scratching" of a vinyl record by moving the record
back and forth on a record player is obtained.

20 A further sound, such as a musical background track, may be arranged to be
replayed for a set period of time commencing when the vehicle starts
moving.

The sound-producing means may be arranged to emit one of a plurality of
25 sets of recorded sounds, selectable by means of a further switch.

The sound activating means may comprise a rocker switch means urged, at
least indirectly, by a wheel of the vehicle to close a first electrical circuit when
the wheel moves in one direction and a second electrical circuit when the
30 vehicle moves in the opposite direction.

The vehicle may have an on/off switch for activating the vehicle and preventing battery drain.

5 Brief Description of the Drawings

In order that the invention may be more readily understood, reference will now be made, by way of example only, to the accompanying drawings, in which:

- 10 Figure 1 is a perspective view of a toy car according to an embodiment of the invention;

Figure 2 is a schematic sectional view of the car of Figure 1 showing a switch;

- 15 Figures 3 and 4 show the switch of Figure 2 in more detail in different positions; and

Figure 5 is a block diagram of a circuit for the toy car.

20 Detailed Description of Particular Embodiments

Figure 1 shows a toy car having wheels 1. Within the car is a sound unit 2, shown schematically in Figure 5, connected to a loudspeaker 3.

- Figures 2 to 4 show a switch for selectively activating the playback of
25 different samples from the sound unit. A rocker 4 is pivotably mounted above a small wheel 5, in turn mounted on an axle, here the rear axle, of the car. The small wheel 5 has a tyre made of a material such that it will not grip the rocker 4 unless pressure is exerted on the car from above. The ends of the rocker 4 are arranged below switches 6, 7 of two circuits having contacts that
30 are biased into an open position. When pressure is exerted on the car and the

car is moved backwards, the rocker pivots and causes switch 6 to close as shown in Figure 4. Conversely, when pressure is exerted on the car and the car is moved backwards, the rocker pivots and causes switch 7 to close.

- 5 As shown in Figure 5, music samples are digitally recorded at the sound unit 2. A music loop 8 is a phrase of music which can be repeated to give a continuous background track. "Scratch" samples 9 and 10 are triggered by the backwards and forwards movement of the car respectively.
- 10 Operation of the sound unit starts when the car is pressed down and moved either backwards or forwards. In either case this triggers a timer/oscillator circuit 11 which sends an oscillating signal to the music loop segment 8 of the sound unit 2. The timer/oscillator circuit emits this signal for a pre-set period of time, e.g. 20 seconds, during which time the music loop will be
- 15 played if no further inputs are made. Every time either switch is operated, the timer is reset and will run for the pre-set period of time again, so that whilst the car is being operated the timer is always being reset and the music will not stop until the car has not been operated for the pre-set period of time. The music loop is edge-triggered by the oscillating signal so that once
- 20 it is triggered by an input it will play one cycle of the loop regardless of whether the input signal remains "on" or not. The purpose of the oscillating signal is to re-trigger the music loop at the end of this cycle without any delay. As an example, a frequency of 50 Hz has been found to work well.
- 25 The two "scratch" samples are operated by the switches 6, 7 respectively and are level activated so that the switch contacts must remain closed for the sample to play. This means that the car must be held in the backwards or forwards position for the sample to play and when it is released the sample will stop. If the car is operated again in the same direction the sample will
- 30 play again from the beginning. In this way, "scratch" samples can be played

for longer or shorter periods and by pushing the car backwards and forwards they can be alternated and repeated.

The samples can be preset in the toy vehicle. Alternatively, the vehicle can
5 include means for recording the samples, e.g. from a computer where they have been downloaded or from a live sound source.

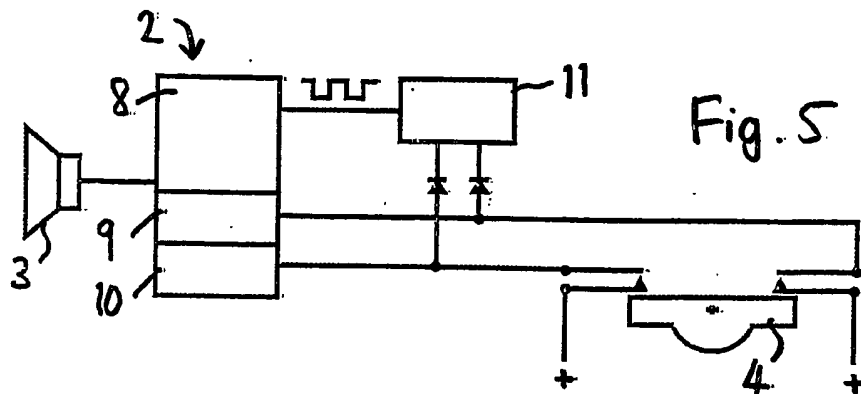
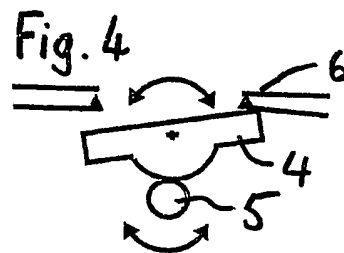
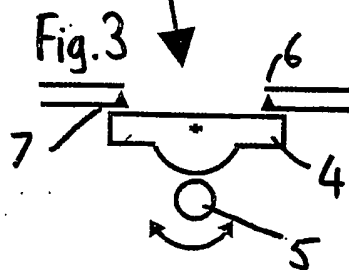
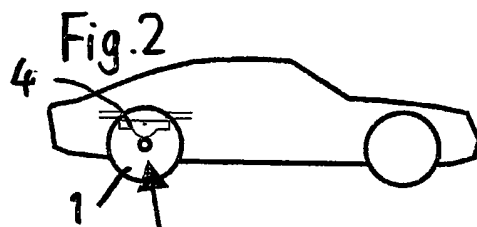
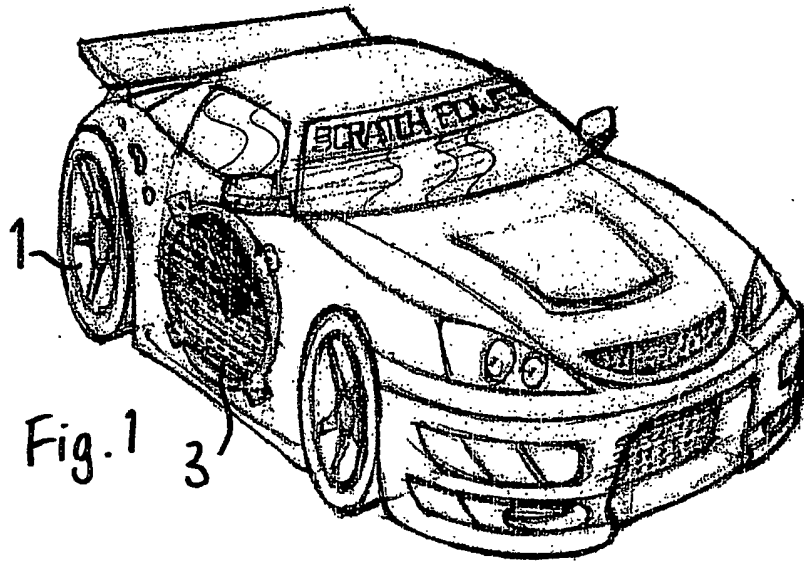
The term "vehicle" as used herein is intended to include objects mounted on wheels, such as robots, figures, animals, aircraft etc. as well as cars and
10 trucks.

All forms of the verb "to comprise" used in this specification have the meaning "to consist of or include".

CLAIMS

1. A toy vehicle comprising sound-producing means arranged to replay recorded sounds and means for activating the sound-producing means
5 depending on the motion of the vehicle.
2. A toy vehicle according to claim 1, wherein a first sound is emitted if the vehicle is moved forwards and a second sound is emitted if the vehicle is moved backwards.
- 10 3. A toy vehicle according to claim 2, wherein the sounds are arranged to be emitted for as long as the vehicle is in motion.
4. A toy vehicle according to claim 2 or 3, wherein a further sound is
15 arranged to be replayed for a set period of time commencing when the vehicle starts moving.
5. A toy vehicle according to claim 2, 3 or 4, wherein the sound-producing means is arranged to emit one of a plurality of sets of recorded
20 sounds, selectable by means of a further switch.
6. A toy vehicle according to any preceding claim, wherein the sound-producing means comprises means for digitally recording sounds from an external source.
- 25 7. A toy vehicle according to any preceding claim, having an on/off switch.

1/1



INTERNATIONAL SEARCH REPORT

Application No

/GB2004/001267

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A63H17/26		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 A63H		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the International search (name of data base and, where practical, search terms used) EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00/45920 A (TOYMAX INC) 10 August 2000 (2000-08-10)	1,4,5,7
Y	page 1, line 4 - line 8 page 2, line 4 - line 7 page 6, line 1 - line 3 page 6, line 14 - line 23 page 7, line 24 - page 8, line 6 claim 1; figure 3	2,3,6
X	US 6 033 285 A (FINE ALAN ET AL) 7 March 2000 (2000-03-07)	1,4,7
Y	column 2, line 19 - line 54 column 5, line 23 - line 35 figure 5	2,3
Y	US 4 432 159 A (KANNO HIDEYUKI) 21 February 1984 (1984-02-21) abstract; figures 2-6	2,3
-/-		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.		
* Special categories of cited documents : *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the International filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family		
Date of the actual completion of the international search 19 October 2004		Date of mailing of the international search report 28/10/2004
Name and mailing address of the ISA European Patent Office, P.B. 5816 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax (+31-70) 340-3016		Authorized officer Turmo Peruga, R

INTERNATIONAL SEARCH REPORT

Application No

/GB2004/001267

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 30 09 040 A (NEUHIERL HERMANN) 17 September 1981 (1981-09-17) the whole document -----	6

INTERNATIONAL SEARCH REPORT

Information on patent family members

Application No

/GB2004/001267

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0045920	A	10-08-2000	AU 3222300 A HK 1027941 A2 WO 0045920 A1	25-08-2000 12-01-2001 10-08-2000
US 6033285	A	07-03-2000	NONE	
US 4432159	A	21-02-1984	CA 1180557 A1	08-01-1985
DE 3009040	A	17-09-1981	DE 3009040 A1	17-09-1981

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☒ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☒ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.